



ERASMUS+ 2017-1-ES01-KA219-038074_1
OUT OF THE DARK: ASTRONOMY AS UNIFYING THREAD FOR CULTURES.



Solar prominences: Scientific essay

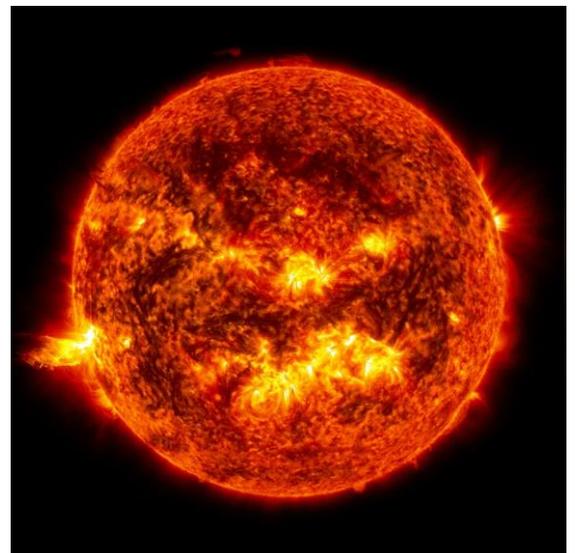
Introduction

First of all we must take a good photo, minimum 2000x2000 px in order to have enough resolution. This is difficult with our basic telescopes, especially if we have not a camera attached to them.

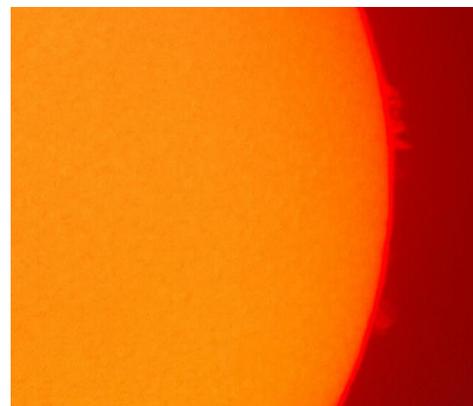
Materials

As you can see the resolution is not enough, so we must use one taken with very special telescopes.

We use GIMP, the same program that we used to do the measurements of the moon craters.



Picture taken with our manufactured telescopes

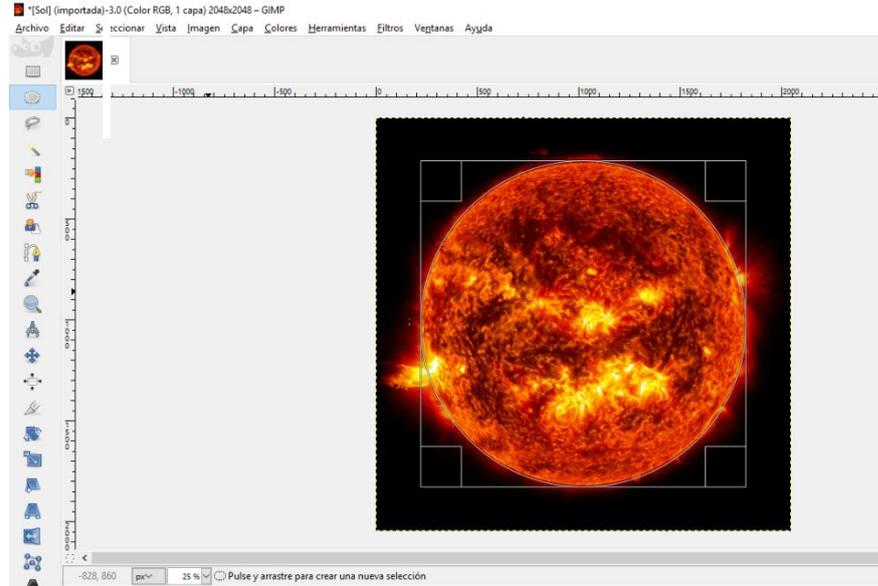


Procedure/Method

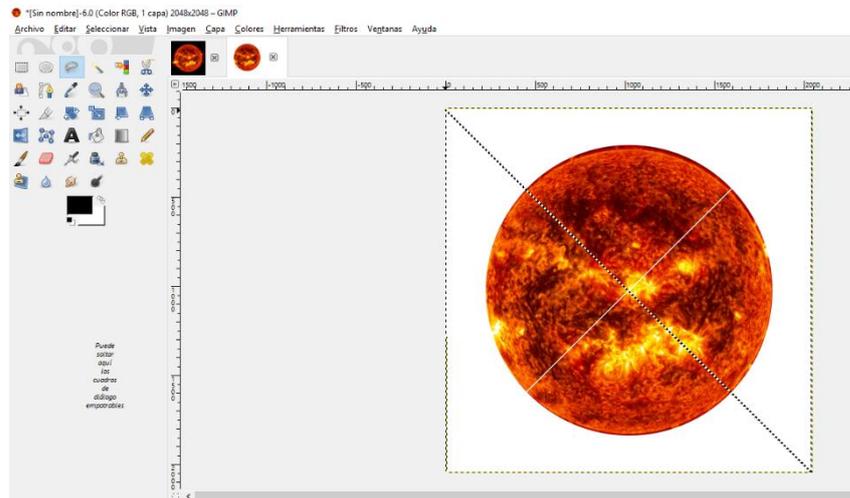
1- We can do the measurement of the prominence and the solar radius following this steps:

➤ First, we measure **the solar radius in pixels**.

- We copy and paste in a new file the Sun using this tool:

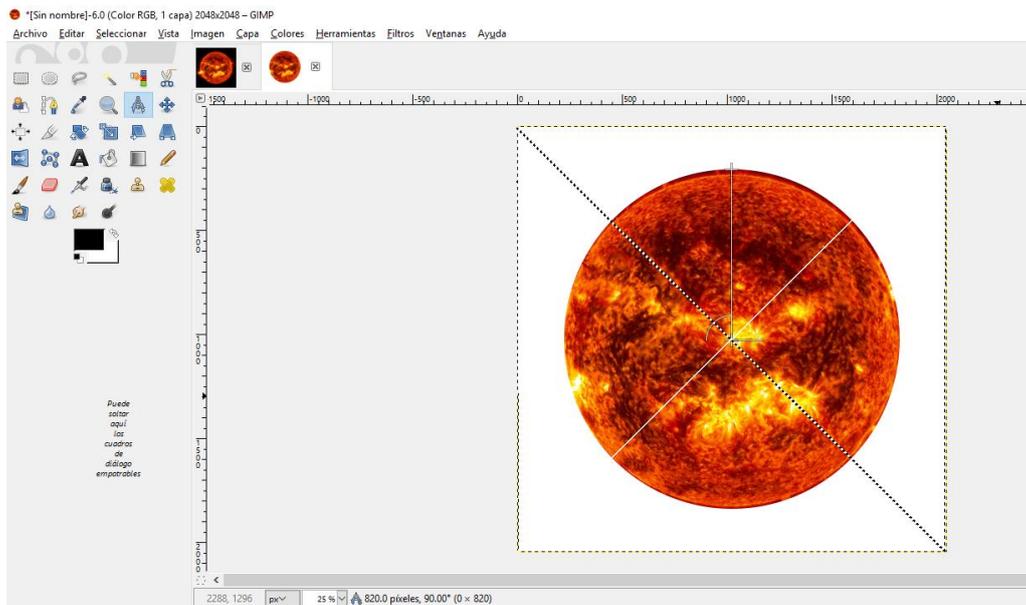


- Next, we connect the corners of the square, using this tool:



- Doing this, we locate the center of the sun. Next, we draw another line from the center to the border of the sun to measure the radius in pixels, using this tool:





- After that, we **measure the solar prominence**, making zoom to get better measurements. We draw a line from one extreme to the other.



- Now that we have all the measurements we can start **calculating the height** of the protuberance in kilometers.

Results

We got the following measurements:

Sun radius: 820 px / 1.392.000 km

Protuberance height: 256 px

To get the measure of the prominence we apply a simple proportionality

820px - 1.392.000 km
256px - X km

$$X = \frac{256 \times 1.392.000}{820} = 434.575,61 \text{ km}$$

Information about solar prominences

What are solar prominences exactly?

A prominence is a large, bright, gaseous feature extending outward from the Sun's surface. A prominence forms overtime scales of about a day and may persist in the corona for several weeks or months, looping hundreds of thousands of miles into space. Scientists are currently researching how and why prominences are formed.

➤ *How do solar prominences affect us?*

As dangerous as these prominences may look, they only have a few secondary effects. Firstly, they might affect and interfere with some satellites orbiting our planet, and even so, NASA said that these phenomena do not affect the ISS. Secondly we are not affected by these prominences at all, however some astronauts might be in danger if the Sun decides to throw out some of these while our astronauts are in the space.

Conclusions

Students have worked in transnational groups, helping each other to understand the method as well as the importance of the solar activity in different aspects of our life over the Earth.

They have learn more vocabulary and scientific procedures, in a collaborative way.

Bibliography

What a solar prominence is? <https://www.youtube.com/watch?v=NXzFgqQw6T8>